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Two New Species of Polydesmid Millipeds from
Western Honshu, Japan

With 2 Text-figures

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ABSTRACT Two new polydesmid millipeds are described from Kyoto Prefecture in western Honshu, Japan; *Polydesmus tangonis* n. sp. and *Epanerchodus rostralis* n. sp. The former is related to *P. japonicus* Miyosi described from the Kwantô district, and is the fourth record of the genus *Polydesmus* from the Japanese Islands. The latter new species seems to be close to *E. gibbosus* Takakuwa recorded from several localities in Honshu. Both the new species are characterized mainly by the shape of their gonopods.

Early in the spring of 1972, the author visited several places on the coastal areas of the Sea of Japan in western Honshu, and collected about ten species of millipeds. This collection contains two species of polydesmid millipeds, which were abundantly found in fallen leaves accumulated in a grove of deciduous broad-leaved trees at Miyazu in Kyoto Prefecture. Both the species seem to be new to science, and will be described in the present paper under the names of *Polydesmus tangonis* and *Epanerchodus rostralis*.

The holotypes and a part of the paratypes of the millipeds described in this paper are deposited in the National Science Museum, Tokyo. Other specimens remain in the author's collection.

***Polydesmus tangonis* n. sp.**

[Japanese name: Tango Motoobiyasude]

Diagnosis. A small epigeal species resembling *P. japonicus* Miyosi (1955, p. 169, fig. 1) in the form of body segments and in the general shape of gonopods, but distinguished from the latter by the roundly lamellar solenomerite, and by the simply slender tibiotarsus.

Male holotype. Color in life reddish brown, and in alcohol pale reddish brown. Length approximately 9 mm, greatest width 1.4 mm. Body small, slender, parallel-sided between segments 8 and 15, and gradually narrowing toward both

ends. Width values of head and of some selected segments as follows:

Head =1.0 mm	Collum=1.0 mm	Seg. 2=1.1 mm
Seg. 3=1.2 mm	Seg. 6=1.3 mm	Seg. 7=1.4 mm
Seg. 8=1.3 mm	Seg. 17=1.1 mm	Seg. 18=1.0 mm.

General structure as in the other Japanese members of the genus, with no special modifications. Head normal in appearance, oval, convex and covered with short hairs. Antennae moderately long, rather clavate, with somewhat virescent three distal articles; the ratio in length of articles 2 through 7 is 5: 9: 5: 6: 9: 5, sensory groups on last three articles poorly developed. Collum as wide as head and uniformly oval; surface poorly sculptured, with three rows of small setae; anterior and lateral sides not bordered, having a tiny notch near each corner. Succeeding segments each slightly elevated on dorsum, with usual pattern of three transverse sculptures on dorsum as shown in Fig. 1 A-C. Lateral keels moderately developed, slightly narrower than long (ratio of W: L=12: 13 in segment 10), bordered, nearly horizontal, and moderately elevated on the surface; lateral margin slightly convex,

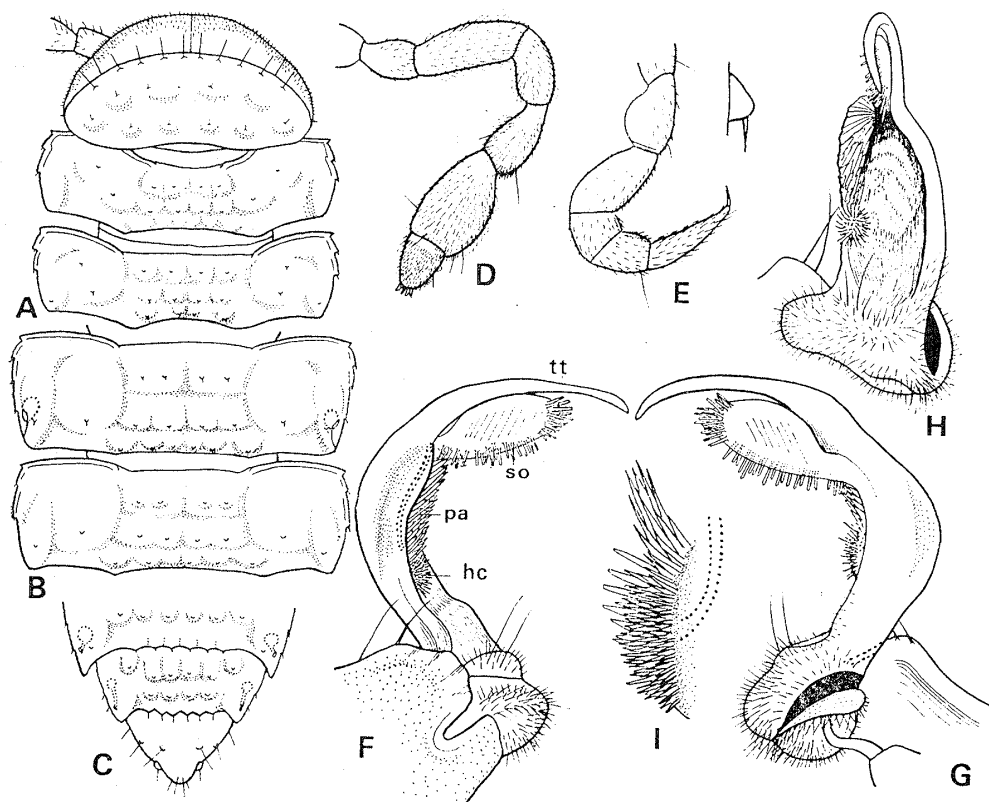


Fig. 1. *Polydesmus tangonis* n. sp., holotype.—A, Head and three succeeding segments, dorsal aspect. B, Segments 10 and 11, dorsal aspect. C, Caudal end of body, dorsal aspect. D, Left antenna. E, Left anterior leg on segment 10. F-H, Right gonopod; lateral, mesial and ventral aspects. I, End of seminal canal, showing hair-cushion. pa=a pack of long bristles, hc=hair-cushion, so=solenomerite, tt=tibiotarsus.

with 3–4 small notches which bear microscopic bristles; posterior corners rounded on segments 2–4, rectangular on 5–12 or 13, increasingly becoming angular back to 18; tooth of segment 19 short; anterior margin nearly straight, and smooth. Pores small, opening on the dorsal surface close to lateral margin, and situated by the fourth notch of pore-bearing keels. Sternites normal in shape, not produced at posterior corners; on segment 6, anterior sternum rising and densely covered with setae, but posterior one deeply depressed. Legs relatively short and not so slender. Length relationships of podomeres: $6 > 2 = 3 > 5 > 4 > 1$; prefemur slightly protuberant on the upper side; femur with relatively thick bristles on the under surface, other podomeres with tiny spherical bristles; claw acute, and not so long.

Gonopods small (about 0.5 mm in longitudinal length excluding coxa), of the form shown in Fig. 1 F–H, and basically similar to the type of *P. japonicus* Miyosi. Coxae cylindrical, with two distal macro-setae. Femoral portion elongate, with projecting solenomerite. Tibiotarsus (tt) long, falcate, without branches or processes. Solenomerite (so) large, and round fan-shaped, with peculiar marginal bristles; hair-cushion (hc) conspicuous and densely covered with bristles of various size; a pack of long bristles (pa) present distal to the hair-cushion.

Female paratype. Length approximately 8.5 mm, greatest width 1.4 mm. Other somatic characters are as in the male.

Type-series. 4 ♂♂ (including holotype), 2 ♀♀, 10 March 1972, Precinct of Amanohashidate-jinja Temple, Miyazu, Kyoto Prefecture, coll. by Y. Murakami.

Notes. Although about 150 species and subspecies of the genus *Polydesmus* are known from the Palearctic Region, only three of them have previously been recorded from the Japanese Islands. On the basis of gonopodal structure, the Japanese members of *Polydesmus* will be distinguished by the following key:

- 1 (4) Solenomerite large, with many marginal bristles.
- 2 (3) Solenomerite wing-shaped; tibiotarsus with several tooth-like processes
.....*P. japonicus* Miyosi (from Gunma Pref.).
- 3 (2) Solenomerite round fan-shaped; tibiotarsus simple, without processes....
.....*P. tangonis* n. sp. (from Kyoto Pref.).
- 4 (1) Solenomerite rather slender, without marginal bristles.
- 5 (6) Solenomerite leaf-shaped, with two tiny processes on the ventral surface;
tibiotarsus without branch*P. tanakai* Murakami (from Is. Okinoérabu).
- 6 (5) Solenomerite leaf-shaped, with a pack of short setae on the ventral surface;
tibiotarsus with a long branch...*P. miyosii* Murakami (from Ehime Pref.).

***Epanerchodus rostralis* n. sp.**

[Japanese name: Kuchibashi Obiyasude]

Diagnosis. A medium-sized, pigmented epigean species not sufficiently comparable to any of the described forms of the genus, though resembling *E. gibbosus* Takakuwa (1954, pp. 92, 98, 233, fig. 106) in general appearance. Distinguished

from all the other known members by the shape of gonopods, especially by the bifurcate branch and knob-like clivus.

Male holotype. Color in life, and also in alcohol, dark reddish brown. Length approximately 15 mm, greatest width 1.9 mm. Body medium-sized, parallel-sided between segments 7 and 14, gradually narrowing toward both ends. The shape of head and of some selected segments as shown in Fig. 2 A–C; the widths of them as follows:

Head =1.4 mm	Collum=1.2 mm	Seg. 2=1.5 mm
Seg. 4=1.6 mm	Seg. 5=1.7 mm	Seg. 6=1.8 mm
Seg. 15=1.8 mm	Seg. 17=1.6 mm	Seg. 18=1.3 mm.

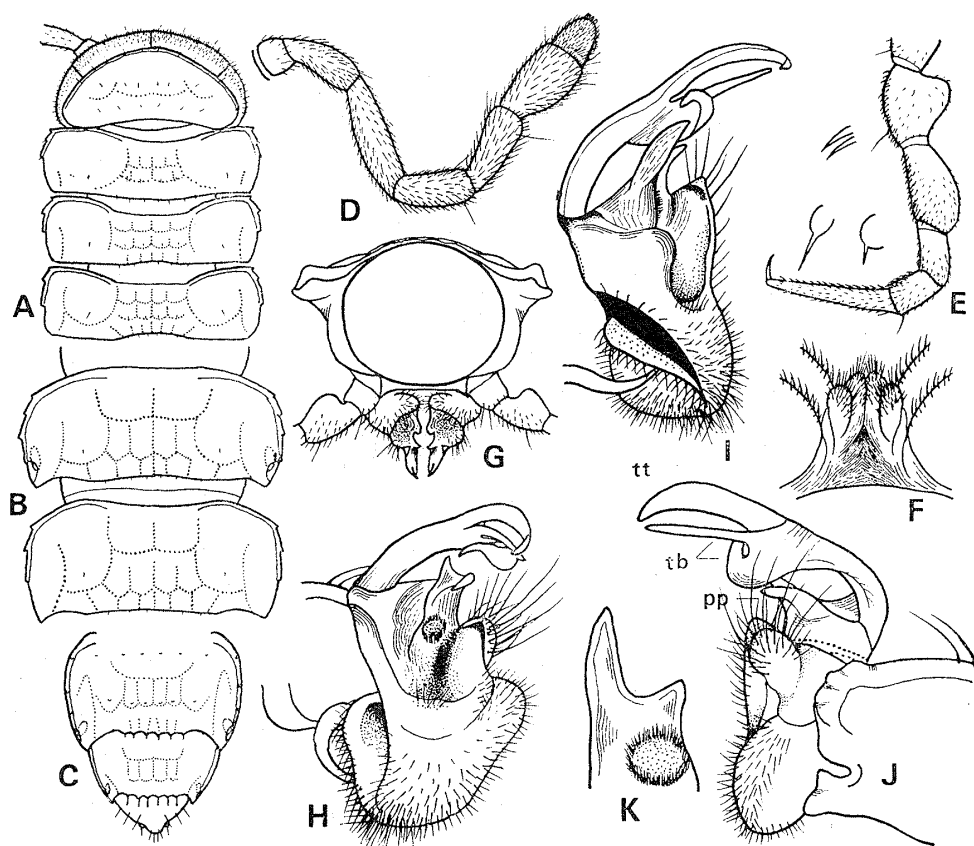


Fig. 2. *Epanerchodus rostralis* n. sp., holotype.—A, Head and four succeeding segments, dorsal aspect. B, Segments 10 and 11, dorsal aspect. C, Caudal end of body, dorsal aspect. D, Right antenna. E, Right posterior leg on segment 7. F, Sternite on segment 6, ventral aspect. G, Caudal aspect of segment 7 with gonopods. H–J, Left gonopod; ventral, mesial and lateral aspects. K, Postfemoral process, disto-ventral aspect. tb = tibiotarsal branch, tt = tibiotarsus, pp = postfemoral process.

Head moderately large, subglobular, anterior portion covered with short hairs. Antennae moderately long, reaching back to segment 4; the ratio in length of articles 1 through 7 is as follows: 7: 10: 18: 10: 12: 13: 7; sensory groups on last three

articles poorly developed. Collum elliptical, narrower than head; surface with weak sculpture on the mid-dorsal area; a series of fine setae present along the anterior margin and two rows of minute setae on the surface; posterior corners rather round, without notches. Succeeding segments basically similar in structure to one another. Dorsum slightly convex and with the sculpture usual for a member of the genus. Lateral keels moderately developed, narrower than long (ratio of length to width of segment 10 is 26:18); each lateral side bordered and slightly convex, with 3–4 small notches; posterior corners rectangular on segments 2–6, becoming more and more pointed from 7 or 8; anterior margin slightly convex or straight on anterior segments, and moderately oblique on typical body segments. Pores small, opening on the depressed lateral margin just behind the fourth notch of pore-bearing keels. Sternites almost quadrate and moderately pubescent, with a deep transverse furrow; post-corners not produced; on segments 5–7, longitudinal furrow deep, and the lateral portion of sternites rising. Legs moderately slender; prefemur well protuberant on the upper side; prefemur and femur with thick bristles on the ventral surface; last three podomeres with small spherical bristles; claw acute; coxae of leg 2 slightly protuberant distally.

Gonopods rather small (about 0.8 mm in longitudinal length excluding coxa), of the form as illustrated in Fig. 2 G–J. Telopodites, *in situ*, lying parallel to the median body axis. Coxa large, cylindrical, without secondary incision on the distal margin. Femur well developed and somewhat swollen on the distal portion; clivus roundly protuberant and knob-like in shape, with long setae on the surface; postfemoral process large and unequally bifurcated at the extremity; seminal canal open at the base of postfemoral process; outer horn absent. Tibiotarsus projecting ventrad and bifurcate; one of the two branches very slender, extending along tibiotarsus and as long as the latter; the other branch somewhat broader than the straight one and sharply bent inward.

Female paratype. Length approximately 15 mm. Legs slenderer, sternite somewhat wider than that in male, and sternal furrow shallower. Other somatic characters as in the male.

Type-series. 3 ♂♂ (including holotype), 10 ♀♀, 10 March 1972, Precinct of Amanohashidate-jinja Temple, Miyazu, Kyoto Prefecture, coll. by Y. Murakami.

Notes. As mentioned before, the present new species seems to be related to *E. gibbosus* in the shape of body segments and in the general appearance of gonopods. There is, however, a decided difference in the details of gonopods between the two species. *E. gibbosus* was recorded from Ikaho (Gunma Pref.; type-locality), Mt. Kurama-yama (Kyoto Pref.), Uzura-mura (Fukui Pref.) and Ja-ana Cave (Aichi Pref.).

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